
ANNEX B: FULL DIMENSIONAL PROTECTION

General

Full Dimensional Protection is the ability of the joint force to protect its personnel and other assets required to decisively execute assigned tasks. Full Dimensional Protection is achieved through the tailored selection and application of multilayered active and passive measures; within the domains of air, land, sea, space and information; across the range of military operations; and with an acceptable level of risk. Commanders will thoroughly assess and manage risk as they apply protective measures to specific operations and will ensure that an appropriate level of safety, compatible with other mission objectives, is provided for all assets.

The overall goal of Army Transformation is the creation of an Objective Force that is dominant across the full spectrum of military operations—persuasive in peace, decisive in war, preeminent in any form of conflict. Full Dimensional Protection conserves the force's fighting potential so that it can be applied at a decisive time and place. Implementing this fundamental concept requires control of the area of operations to ensure friendly forces maintain freedom of action during deployment, maneuver, and engagement. It also requires capabilities to counter enemy systems used to locate, strike, and destroy friendly forces. Additionally, operational facilities, including civil infrastructure, and forces must be protected from concentrated enemy air, space, ground, and sea attacks;

nuclear, biological, and chemical (NBC) weapons; and terrorists. As our forces continue to operate across the full spectrum of operations, it is crucial to its dominance that we take all possible measures to protect the force and ensure its survival. **Survivability** also affects the perceptions of our adversaries about their ability to fight and win against U.S. forces. But the survivability of the Objective Force must extend beyond combat operations across the full spectrum of operations, and it must address current and emerging asymmetric capabilities. The Objective Force must demonstrate to potential adversaries the futility of pursuing asymmetric capabilities as a viable threat. It must ensure U.S. forces retain strategic, operational, and tactical positional advantage over adversaries and can conduct high-tempo, sustainable operations despite the presence, threat, or use of these weapons. Conditions must be established and maintained to ensure the survivability of individuals, units, and supporting infrastructure. Thus, survivability cannot depend on only intrinsic capabilities, but must be a combination of active and passive measures executed by the Objective Force. To meet these challenges, the Army must have modern equipment and an array of forces that incorporate new technologies to meet mission requirements and counter emerging threat capabilities.

This annex focuses on the Army's Objective Force characteristic that is dedicated to Full Dimensional Protection—Survivability.

This includes Air and Missile Defense (AMD) forces, NBC defense assets, space control assets, Military Police, as well as certain Engineer assets. To ensure that the Objective Force is protected throughout the full spectrum of operations, these assets must be responsive, versatile, deployable and sustainable for the duration of operations. The lethality of our active defense protection capability should minimize effects on our forces to conserve its fighting potential.

As an example, the Medium Extended Air Defense System (MEADS) is an Army objective system designed to provide low- to high-altitude defense, theater ballistic missile defense, and cruise missile defense of the maneuvering force and fixed assets. It will need to be deployable to provide protection to early entry forces at points of debarkation. It will be

responsive and agile to provide protection of maneuver forces. It will be lethal to minimize the effects of hostile air or missile attacks to forces on the ground. It will be sustainable to support any long-term operations similar to the present day AMD mission in Southwest Asia.

Information Superiority is a key enabler for systems providing a Full Dimensional Protection capability. Target detection, classification, and combat identification information must be determined and disseminated. The Sentinel radar and the Forward Area Air Defense Command and Control (FAAD C2) system are examples of AMD assets that enable Objective AMD forces to accomplish their Full Dimensional Protection mission by reducing fratricide and maximizing combat effectiveness.

Air and Missile Defense

Overview

Air and Missile Defense systems, both national and theater, provide the necessary capabilities for Full Dimensional Protection to meet the current and future requirements in support of our National Security and National Military Strategies. Theater systems provide commanders and operators an integrated real-time air picture, weapon system cueing, tracking, friend-or-foe identification, and weapon systems to protect ground forces, critical assets, and geopolitical targets from Unmanned Aerial Vehicles (UAVs), helicopters, fixed-wing aircraft, and ballistic missiles. The National Missile Defense (NMD) System will provide the National Command Authorities and CINC NORAD with acquisition, tracking, discrimination, destruction, and kill assessments of intercontinental ballistic missile-delivered warheads directed against the United States territory.

The Air and Missile Defense (AMD) force is essential to the joint and combined warfight, providing strategically responsive, dominant

AMD from mud to space. AMD is a strategically, operationally, and tactically versatile combat multiplier that masters change today and well

into the 21st century, to provide Full Dimensional Protection. It is the preeminent AMD force in the world, manned by confident, competent, caring soldiers and leaders with expanding opportunities for all.

Mission

During Army Transformation, the overall AMD mission remains virtually unchanged—protect the force and selected geopolitical assets, to include the United States, from aerial attack, missile attack, and surveillance. Additional subordinate or implied missions and functions will emerge with respect to the type of operation (across the spectrum of operations), the echelon of employment, and the size and complexity of the expected threat set.

Description. AMD systems are organic to divisions, corps, and theater forces in the Legacy, Interim, and Objective Forces. The NMD system is a strategic system.

In the Legacy Force, the AMD units in the heavy, light, or special divisions contain Bradley Linebacker, Avenger, Stinger Man-Portable Air Defense System (MANPADS), Sentinel, and Forward Area Air Defense (FAAD) command and control (C2) systems. The corps AMD units contain Patriot, Avenger, Sentinel, and FAAD C2 systems. The AMD force at theater level consists of Patriot, Avenger, Sentinel, FAAD C2, and the Joint Tactical Ground Station/ Multi-mission Mobile Processor (JTACS/M3P). The elements of the modularly configured AMD Planning and Control System (AMDPCS) appear throughout the

force, from the theater-level Army Air and Missile Defense Command to battery level.

In the **Objective Force**, the AMD units will contain Avengers, Sentinels, Air and Missile Defense Planning and Control Systems (AMDPCSs), FAAD C2 systems, and High-Mobility Multipurpose Wheeled Vehicle (HMMWV)-mounted Advanced Medium Range Air-to-Air Missile system (HUMRAAMs). The Enhanced Area Air Defense (EAAD) system (formerly the Enhanced Counter-Air Capability (ECAC) system) will replace Bradley Linebacker, Avenger, and HUMRAAM in divisional and echelons above division units starting in FY15. The EAAD system will be a family of kinetic energy and directed energy weapon components that are members of an integrated air defense system. The corps AMD units contain Patriot (replaced by MEADS beginning in FY12), Avengers, Sentinels, AMDPCSs, FAAD C2 systems, HUMRAAMs, and EAAD components. The theater-level AMD force consists of Patriot, Theater High Altitude Area Defense (THAAD), Avengers, AMDPCSs, FAAD C2, Sentinels, JTACS/M3P, and EAAD components. The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is task organized into the AMD force and deployed in both corps and theater areas in support of AMD forces and missions. At the national level, NMD will be under control of CINC NORAD.

The Objective Force AMD package contains the requisite weapon, sensor, and C2 components organized in battle elements. Battle elements are

mission-tailored, force projection organizations. These elements and components are integrated into the AMD “plug and fight” architecture and, simultaneously, the joint AMD Battle Management Command, Control, Communications, Computers, and Intelligence (BMC4I) network. AMD personnel are attached to applicable joint and maneuver force headquarters to establish and maintain the required linkages with deployed joint air defense and air control elements and to ensure AMD protection of commanders’ critical assets.

The transforming AMD force (primarily the objective AMD force) uses plug and fight and expanded battlespace engagements to prosecute operations. The plug and fight capability is fundamental to and inherent in all future AMD operations. Plug and fight constitutes the ability of system functional components (weapons, sensors, and C2 elements), not systems, to move into designated positions, emplace, immediately establish communications, and automatically integrate into the defense with control exercised by a designated AMD BMC4I center.

The organization of weapons, sensors, and C2 elements is accomplished through a process of affiliation. Organizations are dynamically tailored in composition, mission, and tactics to best accomplish the defined objective. In this manner, ad hoc task organizations are formed that operate as seamless, cohesive entities. Units in the defense can share organic assets, eliminating the traditional unit paradigms of fixed size, direct ownership, and the habitual

association between organic weapons, launchers, sensors, and C2. In essence, most AMD systems as they are known today will lose their identity over time. Some legacy systems, such as Patriot, however, will likely continue to plug and fight at the system, rather than the component, level.

Role in the Army

AMD is the Nation’s only final protective fires for National Missile Defense (NMD) and Theater Missile Defense (TMD). The threat of aerial and missile attack is very real today, continues to grow, and poses a danger not only to U.S. troops overseas but also to Americans at home. North Korea, Iran and Iraq are acquiring ballistic missiles with NBC payloads. Ballistic missiles will target troop concentrations, logistical areas, airports and seaports, and geopolitical/ population centers at home and around the world.

AMD forces perform prominent roles in defensive and offensive information warfare to sustain or retain information superiority. Primary functions include protecting C4ISR facilities from missile and air attacks, providing aerial battlespace situational knowledge and early warning, and denying the threat of aerial surveillance of the force. The initial NMD system defends the United States territory against a limited ballistic missile attack, whether accidental, unauthorized, or deliberate. This initial system is expandable to provide global missile defense protection when necessary.

AMD defensive information warfare protects U.S. forces information

operations. AMD weapon systems defend information systems assets at the theater, corps, and division levels. AMD offensive information warfare operations degrade an adversary's ability to collect information. AMD forces engage the Reconnaissance Surveillance and Target Acquisition (RSTA) platforms (UAV or fixed-wing) to deny aerial intelligence collection. The Army AMD radar network is fully integrated into a consortium of national, joint, space, aerial, and ground sensors, transmitting real-time or near-real-time air battle space knowledge and early warning to commanders at all levels.

AMD Modernization in Support of Transformation

Overview

The Army has begun a revitalization program aimed at transforming today's Army into an Objective Force capable of domination across the full spectrum of operations. The ultimate goal of modernization is to provide the right capabilities to combat-ready soldiers, capable of carrying out the mission. As the Army transitions to new doctrine, equipment, and organization, AMD forces will continue and expand modernization initiatives already underway to transform in stride with the rest of the Army.

Legacy Force. Even though the Legacy Force faces obsolescence issues, it must respond when, where, and as needed until systems are retired. As AMD addresses modernization, it cannot overlook its legacy systems. Improvements to legacy systems (Patriot, Stinger,

Avenger, AMDPCS, FAAD C2, Sentinel, and Bradley Linebacker) must continue until they are retired to ensure that they are useful/effective for the Interim and Objective Forces. Robust recapitalization programs are needed to fund these improvements and maintain these systems until their retirement. Patriot is the only AMD system currently approved for recapitalization.

Interim Force. The Interim Force units will be supported by currently available equipment plus HUMRAAM, an interim system.

Objective Force. The Objective Force reflects the culmination of ongoing system enhancements, new system capabilities, and state-of-the-art technologies. It is modular, mobile, tailorable, and interoperable with Army forces and joint elements and fully capable of protecting the forces across the spectrum of operations. Research and development of AMD objective systems is geared toward this end. The introduction of THAAD, MEADS, and JLENS will enhance protection of maneuver forces and other critical assets throughout the theater. MEADS is the gateway system for the objective AMD force and will eventually replace Patriot. The EAAD system of components is the objective solution to Short-Range Air Defense (SHORAD) and to rocket, artillery, and mortar threats, and will eventually replace Stinger-based platforms. To protect its force generation capability, a cornerstone of Objective Force requirements, the Transformation force will rely on the NMD system for defense of the United States. A multi-tiered, multi-Service NMD system

could eventually be capable of providing defense for forward-deployed troops as well, and could support future allied/coalition concepts, ensuring Objective Force access and providing credible flexible deterrent options (FDOs).

Summary

Tomorrow's plug and fight capability and battle elements are the foundation for a bold shift in how we will equip and organize our TMD forces. AMD will develop and field modular equipment—components instead of traditional system packages. Weapon, sensor, and C4I components will then be integrated into and deployed as right-sized, configurable, mission-tailorable battle elements.

These versatile units will be mobile, deployable, survivable, and lethal. System components and battle elements will be interoperable with other AMD elements, Army forces, and service AMD systems. High-to-Medium Altitude Air Defense (HIMAD) and SHORAD systems, as we know them today, will be subsumed in this emerging AMD force. As it transforms, AMD will be in line with the Army Vision of **strategic responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability**.

NMD implicitly supports Army Transformation, ensuring Army force responsiveness by protecting our ability to mobilize and project power. NMD will have the capability to engage Intercontinental Ballistic Missiles (ICBMs), potentially armed with weapons of mass destruction, at

altitudes that mitigate or negate their effects. Future architectures will enhance capabilities to meet more advanced threats and at longer ranges.

The goal of Army Modernization is to provide combat-ready soldiers capable of carrying out the mission. The goal of AMD is to provide these soldiers with the equipment necessary to carry out the mission. In this respect, AMD is addressing these needs for the Legacy, Interim and Objective Forces—we are on the move and moving out as the rest of the Army transforms.

Discussion of Equipment

Bradley Linebacker

Description. The Bradley Linebacker has an externally mounted launcher that can fire four Stinger missiles while moving. It provides armored protection for the Stinger team during engagements.

Operational Requirement. It provides heavy maneuver forces with dedicated, low-altitude air and missile defense against cruise missiles, UAVs, helicopters, and fixed-wing aircraft.

Program Status. The program is in the procurement cycle. Additional production has been awarded from FY04 to FY07. Funds the procurement of 25 additional Linebackers, six Man-Portable Air Defense System under Armor (MUAs), and training devices. Under the new force structure delineated in the AMD transformation plan, only 16 Linebackers will be required in each heavy division. This reduces the total number of additional

Linebackers needed for the Army to 24. Redistribution of existing Linebackers will field the 1st Infantry Division, 1st Armored Division, and the 2nd Infantry Division. The FY02 President's Budget (PB02) also funds 15 tabletop trainers, 50 precision gunnery system upgrades, 60 through-sight videos, and 12 force-on-force trainers.

While sufficient Bradley Linebackers and MUAs are being procured to field to the heavy division AMD battalions in accordance with the AMD transformation plan, these systems are not fielded until FY04. Alternatives are being developed to obtain earlier procurement funding (in FY03) and begin fielding in the FY03-05 period.

Stinger Upgrades

Description. The Stinger upgrade is mounted on a variety of platforms, and can also be shoulder fired. Its range is 3kms-plus. It is the only air defense weapon system in the forward area.

Operational Requirement. It provides low-altitude, short-range air defense against cruise missiles, UAVs, helicopters and fixed-wing aircraft.

Program Description. Program is in the procurement cycle. The PB02 funds the upgrade of 6,724 reprogrammable microprocessor (RMP) missiles to the Block I configuration and modifications to platforms to take advantage of the missile improvement. The PB02 also upgrades Stinger troop proficiency trainers beginning in FY01. The upgrade includes multiple scenario locations, in various settings, and more

aircraft models. Additionally, the upgrade will incorporate improved scenario generation capabilities. Platform modifications to take advantage of the Block I missile improvements will be completed by FY04.

Avenger

Description. The Avenger consists of two Stinger launcher pods (eight ready missiles), a .50-caliber machinegun, a forward-looking infrared (FLIR) system, a laser rangefinder, and an identification friend-or-foe system mounted on a HMMWV chassis.



Operational Requirement. It provides low-altitude air, short-range, day-night air defense against UAVs, helicopters, and fixed-wing aircraft for division through theater forces.

Program Status. Program is in the procurement cycle. Procurement ends in FY01. Modifications continue until FY07. The PB02 funds 36 fire units, 615 slew-to-cue/common fire control computer/automatic video tracker kits, 176 FLIRs/laser rangefinders, and required trainer upgrades. The PB02 funds the production and fielding of 36 Avenger fire units, 30 tabletop trainers, 52 tabletop trainers upgrades, 288 blank firing adapters, 10 institutional conduct of fire trainer upgrades, and an embedded trainer for each fire unit. It procures 615 slew-to-cue, common fire control computer, and automatic video tracker kits and 276 upgraded FLIRs and laser rangefinders to replace

obsolete components. Equipment required to standup direct support maintenance units as well as additional authorized stockage list items will be procured for Army National Guard (ARNG) units by FY02. Funding is also provided for 68 Environmental Control Units (ECUs)/Power Providing Units (PPUs) to complete fleet retrofit. Funding for additional Avengers for ARNG enhanced Separate Brigade (eSB) Air Defense Artillery (ADA) batteries and ARNG divisional battalions was sought but still remains an unfinanced requirement in PB02.

Joint Tactical Air Ground System (JTAGS)

Description. JTAGS receives and processes direct downlinked Defense Support Program (DSP) satellite data and disseminates information to in-theater ground. It is C-130 transportable.



Operational Requirement. JTAGS provides theater with real-time alerting, warning, and cueing of tactical ballistic missile launches and other tactical events. This real-time data disseminated to all TMD operational elements, enables theater commanders to take immediate action to engage and destroy the threat and associated infrastructure and protect valuable assets in the projected impact area.

Program Status. The basic JTAGS system is fielded. Modifications are in progress to upgrade systems. Known as the Multi-Mission Mobile Processor (M3P) configuration, these upgrades will allow for compatibility with the DSP replacement, Space-Based Infrared System (SBIRS) High. With the linkage of the Army upgrade program to the Air Force SBIRS, changes in the SBIRS schedule have had an impact on the JTAGS upgrade program. While there is sufficient funding to produce the upgrades, the two-year SBIRS program slip has resulted in insufficient funds to field the JTAGS upgrades, including crew training, operational testing, and certification. Given additional funding, the First Unit Equipped (FUE) is anticipated for FY04.

Patriot

Description. Patriot is a corps and echelon above corps (EAC) AMD system that can simultaneously engage and destroy multiple targets at varying ranges and altitudes. It is the world's only battle-proven TMD system. The upgraded



system Patriot Advanced Capability-3 (PAC-3) provides a remote launch capability; increases range, altitude, and firepower; and engages multiple maneuvering and non-maneuvering TBM and cruise missile threats. Additionally, a hit-to-kill missile is an integral part of this upgrade.

Operational Requirement. Patriot provides long-range, high-altitude AMD

protection of corps and EAC ground forces and critical assets.

Program Status. PAC-3 ground equipment FUE was achieved in 2QFY01. FUE for the missile is on track for 4QFY01. Ground equipment upgrades include radar enhancements, below battalion communication upgrades, and the ability to remote launchers up to 30km from the radar. These Patriot modification changes will improve search, detection, track, and discrimination by the radar. Additionally, procurement of PAC-3 hit-to-kill missiles will lead to increases in range, altitude, and firepower. The PAC-3 missile Low Rate Initial Production (LRIP) I contract was awarded in 3QFY00, LRIP II in 1QFY01, and LRIP III contract is scheduled for 1QFY02. Seven consecutive successful intercepts have taken place as a part of development testing. Funding for equipment to fill out the second ARNG Patriot battalion was sought but remains an unfinanced requirement.

Sentinel



Description. Sentinel is a trailer-mounted radar system that detects, tracks, classifies and identifies cruise missiles, UAVs, helicopters, and fixed-wing aircraft to cue SHORAD

weapons. It is employed in the division and corps area. Data is fed through the FAAD C2 to SHORAD weapons. The system is C-130 deployable.

Operational Requirement. Sentinel provides acquisition, tracking, classification, target location, and identification of cruise missiles, UAVs, helicopters, and fixed-wing aircraft to cue SHORAD weapons into field of view.

Program Status. The program is in the procurement cycle. The PB02 continues funding five systems and the enhanced target range acquisition and classification program. It does not fund a sustainment program. The FY02-07 Plan fully funds fielding to five ARNG units to complete Sentinel fielding to the force. It also funds development and procurement of enhanced target range, acquisition, and classification modifications to the Sentinel radar. The upgrades, Phase IA Range Improvements and Phase IB Target Classification Improvements, enhance target detection and classification of low observables and stealthy targets at greater ranges than currently available. Additionally, Sentinel will have a full target classification capability, continuing the Phase IB baseline capability for target airframe classification, and will support modifications required for the joint identification and target classification function to allow SHORAD weapons to operate at maximum effectiveness. Funding for additional Sentinel radars for ARNG eSB ADA batteries and ARNG divisional battalions was sought, but remains an unfinanced requirement.

High Mobility Multipurpose Wheeled Vehicle-Mounted Medium-Range Air to Air Missile (HUMRAAM)



Description. HUMRAMM is a heavy variant HMMWV-based launcher platform consisting of launch rails, launcher electronics, and C4 components. This system is used to store, transport, erect, direct, and launch multiple AIM-120 AMRAAMs. It buys back lost battlespace and provides an extended overwatch of Interim Brigade Combat Team (IBCT)/Interim Division (IDIV).

Operational Requirement. HUMRAMM provides extended range AMD against cruise missiles, UAVs, large-caliber rockets, helicopters, and fixed-wing aircraft for division and corps forces.

Program Status. Program is in the development cycle.

Medium Extended Air Defense System (MEADS)

Description. Launcher is mounted on a 5-ton chassis with 10 ready missiles, provides 360-degree



coverage, is C-130 deployable, and is employed at the corps and theater levels. This system requires 60% less airlift than Patriot. Its ease of deployment and plug-and-fight versatility and tactical mobility provides protection for a mobile, maneuvering force.

Operational Requirement. MEADS provides low- to high-altitude air defense, theater ballistic missile defense, and cruise missile defense of the maneuvering force and fixed assets.

Program Status. Program is in the development cycle. The PB02 funds the completion of the risk-reduction phase and the initiation of the design and development phase. FUE is projected in 4QFY12. MEADS PB02 funding provides for the completion of the risk-reduction effort, which includes the development of prototype MEADS major end items, and the start of the design and development phase.

Theater High Altitude Air Defense System (THAAD)



Description. THAAD is a theater-level hit-to-kill AMD system designed to negate TBMs at long range and high altitudes. Its multiple-shot capability minimizes the likelihood of damage

caused by Weapons of Mass Destruction (WMD) and falling debris. THAAD is capable of both endo- and exoatmospheric intercepts. Combined with Patriot, THAAD provides near-leakproof defense against TBMs. THAAD is C-5/C-17 deployable.

Operational Requirement. THAAD provides long-range, high-altitude area defense of ground forces and high-value assets against TBMs. THAAD will be part of the Objective Force with the mission to satisfy upper-tier missile defense requirements.

Program Status. The program is in the Engineering and Manufacturing Development (EMD) phase of development. Recent Program Budget Decision (PBD) places THAAD under Terminal Defense as part of a Ballistic Missile Defense Organization (BMDO) restructuring. PB02 funds EMD; however, based on BMDO restructuring and PBD, funding implications are being assessed. THAAD Configuration 1 FUE is scheduled for 3QFY07, and Early Operational Capability (EOC) is scheduled for 4QFY08. THAAD acceleration options, currently being assessed, can potentially move FUE by 12 months given sufficient increases in funding.

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor (JLENS)

Description. JLENS is a theater-based system using advanced sensor and networking technologies to provide wide-area surveillance and precision tracking of land attack cruise missiles. A joint program, with Army lead,

JLENS also performs as a multi-role platform to enable extended range C2 linkages. A key element of the Army Transformation single integrated air picture, JLENS integrates data from multiple sensors and C3I networks and provides correlated data to BMC4I nodes. JLENS is less expensive to buy and operate than fixed-wing aircraft and can stay aloft for up to 30 days, providing 24-hour battlespace coverage over extended areas.



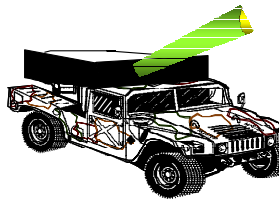
Operational Requirement. JLENS provides over-the-horizon surveillance and precision track for broad area defense against land attack cruise missiles.

Program Status. Program is in the development cycle. The PB02 funds initiation of Block I EMD. PB02 funding allows JLENS to design, develop, integrate, and demonstrate the Block I radar (fire control with sector surveillance) during program definition and risk reduction, leading to a Milestone II decision in FY05.

Enhanced Area Air Defense (EAAD) System

Description. The EAAD system is a conceptual system of plug-and-fight weapons, sensors, and C4ISR components. Still under development,

the EAAD system could emerge as a directed-energy weapon (laser or high-power microwave), a hypervelocity kinetic-energy weapon, or both. EAAD weapons protect maneuver forces and facilities (point targets), assure friendly aerial freedom of action, and provide countersurveillance and counterreconnaissance of designated areas. Also has the potential to provide defense against other threat targets, such as cruise missiles, helicopters, and fixed-wing aircraft.



Operational Requirement. Provides short-range defense against rockets, artillery and mortar projectiles, and reconnaissance UAV threats for theater, corps, and division forces.

Program Status. The program is in the development cycle.

- The EAAD Weapon Development Program initiates program definition and risk-reduction phase in FY06; EMD phase follows in the FY09-12 period.
- EAAD Target Detection Support develops and procures the requisite software to allow reconfiguring of Sentinel to perform its air defense role or the dual mode of tracking rockets and mortar rounds (supports the EAAD concept).
- EAAD System Integration initiates software development to meet emerging AMD plug-and-fight requirements.

This program is currently unfunded pending approval of requirements document.

National Missile Defense (NMD)

Description. Acquires, tracks, discriminates, destroys, and provides kill assessments of ballistic missile-delivered warheads directed toward the United States in their mid-course phase of flight. The land-based portion of NMD is a ground-launched hit-to-kill system designed to intercept and destroy ICBMs aimed at the continental United States. The land-based system will be comprised of a launch site(s), radar sites, and command and control sites. The system will operate in conjunction with the Integrated Tactical Warning and Attack Assessment System in Cheyenne Mountain and other sensor systems such as the Defense Support Program (DSP), the SBIRS, and the Upgraded Early Warning Radars (UEWRs).

Operational Requirement. It protects all 50 states, infrastructure, and population at-large against a limited ballistic missile attack from states of concern and preserves the Nation's ability to mobilize and respond.

Program Status. The program is in the development cycle and is pending a presidential deployment decision.

Assessment

The transforming AMD force will maintain pace with the Army and, in coordination and cooperation with other Joint Theater Air and Missile Defense (JTAMD) elements, provides the

requisite Full Dimensional Protection of the Army Legacy, Interim, and Objective Forces across the spectrum of operations.

HIMAD and SHORAD systems, as we know them today, will be subsumed in this emerging AMD force. As it transforms, AMD will be in line with the Army Vision of **strategic responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability.**

NMD implicitly supports Army Transformation, ensuring Army force responsiveness by protecting our ability to mobilize and project power. NMD will have the capability to engage ICBMs, potentially armed with weapons of mass destruction, at altitudes that mitigate or negate their effects. Future architectures will enhance capabilities to meet more advanced threats and at longer ranges.

While budget constraints will impact the realization of many of the AMD initiatives, AMD resources will be focused on those that are time-critical and those that provide the greatest benefits to the Army force. AMD system capabilities to meet the needs of the Legacy, Interim, and Objective Forces are presently constrained by limited quantities, technologies, or available funding. High-priority ARNG AMD units have been and will be modernized as new systems are fielded. Conversely, lower-priority ARNG AMD units cannot be modernized at this time due to current funding constraints.

Nuclear, Biological, and Chemical Defense

Overview

Nuclear, Biological, and Chemical (NBC) systems provide the Army with the enabling technologies of NBC defense, smoke, and obscurants to fully achieve force protection, information dominance, and Full Dimensional Protection in a WMD environment. The NBC functional area integrates doctrine, training, and equipment that allow the Army to obtain the best protection from NBC hazards for the least operational cost. The Army's NBC defense strategy is to employ "focused defense" against NBC threats so only units directly affected by the hazard would be warned to take protective measures. Using focused defense, large numbers of units will no longer assume a full protective posture as a precautionary measure. Focused defense allows units to operate in the lowest required protective posture without unacceptably increasing the risk to soldiers.

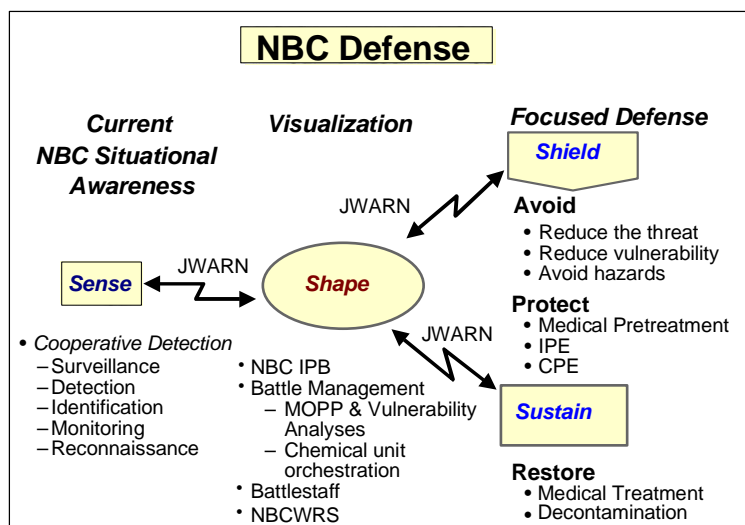
In addition to providing the means of general NBC defense common to all units, the Army provides its units increased NBC protection and substantially buttresses their ability to preserve their combat power with specialized Chemical Corps units. NBC reconnaissance units with their standoff detectors are the principal means for contamination avoidance. Combat power is restored after units are contaminated with capabilities brought to the field by decontamination units with their significantly improved capacity decontamination equipment and procedures. Biological detection

companies provide shortened response time for divisions and corps to initiate their medical response procedures to the growing threat of biological warfare agents. Information dominance is supported through development of smoke and obscurants in the visual, infrared, and millimeter ranges. Both motorized and mechanized smoke units provide this large-area smoke capability.

The NBC functional area also includes the Army's effort in addressing homeland defense against WMDs. Today, the Nation is beginning to understand that CONUS installations and power projection platforms are no longer a sanctuary. The very ability to execute our force projection strategy requires NBC-focused defense over strategic forces and means from premobilization through conflict termination.

NBC Modernization in Support of Army Transformation

Overview



Chemical Vision 2010 (CV 2010) is the implementing vision of the Army's NBC defense modernization effort. It enables the commander to minimize casualties and preserve combat power in an NBC environment and to create information superiority by using obscurants to degrade the enemy threat acquisition capability. Operationally, if the enemy has an offensive NBC capability, our primary goal is to deter threat use. If deterrence fails, our mission is to defend against an NBC attack with minimal casualties and degradation, allowing commanders to quickly restore full combat power and continue their mission across the full spectrum of operating environments.

CV 2010 describes the principles of NBC defense as sense, shape, shield, and sustain. The principles of obscuration are sense, shape, shield attack, and deceive. These principles support the patterns of operations in **Army Vision 2010** (Protect the Force and Information Dominance) and the principles in **Joint Vision 2020** (Full Dimensional Protection and Information Operations).

In providing the NBC and smoke systems for the Army's Transformation strategy, the Army will equip its specialized chemical units and provide NBC items common to all units in accordance with the three tenets of the Army's overall modernization strategy: (1) focusing its S&T efforts on the Objective Force, (2) meeting immediate operational needs in the

Interim Force, and (3) maintaining and improving the warfighting capabilities of the Legacy Force through a combination of selected modernization, recapitalization, and sustained maintenance of essential systems. The following paragraphs will elaborate on just some of the key NBC systems in the Army's modernization plans, realizing there are numerous additional NBC systems in development.

Contamination Avoidance

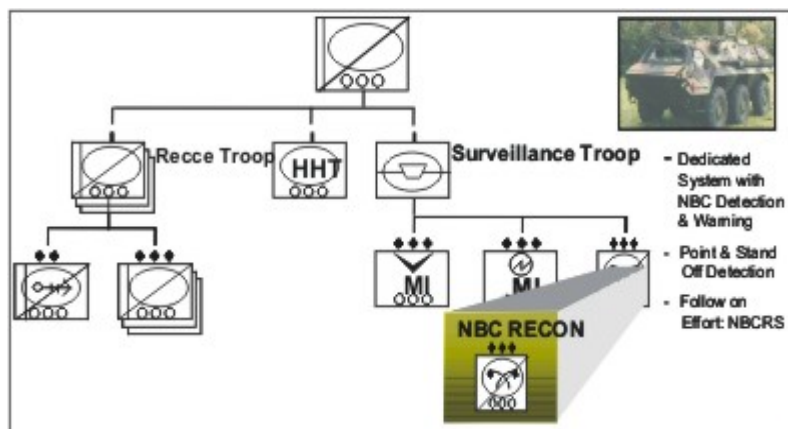


Sensing is key to avoid contamination, take protective action, and restore combat power. The goal of sensing is to develop a cooperative detection system that interfaces with current C4I networks and future Battle Management Systems. The

cooperative detection system consists of NBC surveillance, detection, identification, monitoring, and reconnaissance elements operating on the existing C4ISR architecture and feeds into the NBC Battle Management System. By 2010 and beyond, as both sensor technology and the network mature, sensors will be integrated onto all battlefield systems across all Services. These will be smart sensors that detect, identify, and warn of all NBC and Toxic Industrial Materials (TIMs) threats and can be rapidly programmed for new threats as they are developed and used by the adversary.

Converging Reconnaissance Requirements

There will be a converging of NBC reconnaissance from separate systems such as the NBC Reconnaissance System (M93 series, commonly called Fox), the biological surveillance (M31 series Biological Integrated Detection System (BIDS)), and the Light Nuclear Biological Chemical Reconnaissance System (LNBCRS), into a single platform for the Objective Force based on the Interim Armored Vehicle-NBC Reconnaissance System (IAV-NBCRS). Current developments, such as the Joint Biological Point Detection System (JBPDS), the Chemical Biological Mass Spectrometer (CBMS), the Short Range Biological Standoff Detection System (SRBSDS), and NBC sensing packages for Unmanned Ground Vehicles and Unmanned



Aerial Vehicles will contribute key capabilities to meeting the needs of the Objective Force.

In accordance with the Army's Transformation Strategy for the Interim Force's IBCT, the IAV-NBCRS will be based on Force XXI IBCT operational requirements. The IAV-NBCRS will have surveillance, detection, identification, monitoring, and reconnaissance capabilities. The IAV-NBCRS will also meet lethality, tempo, survivability, and sustainability requirements. The IAV-NBCRS will contain radiation, point biological and chemical, and standoff chemical detection systems in one platform, as well as leverage UAV assets within the IBCT for Aerial NBC Reconnaissance. IAV-NBCRS will be organized into a three-vehicle platoon organic to the Reconnaissance Surveillance Target Acquisition (RSTA) squadron of the IBCT.

Protection



Protecting the force from NBC hazards is critical to the success of the Army in any battlespace, with the goal of providing Army units the ability to fight and win in a contaminated battlespace. Recent and near-term individual protection developments are producing lightweight, durable protective clothing and masks that are compatible with existing and near-term weapons systems. These new technologies allow for a much lighter burden on the logistics system by increasing the wear life of the suits by 50% (from 30 to 45 days) thus

substantially decreasing the demand for sustainment stocks. The Army will begin replacing its current M40 series of protective masks beginning in FY05 with the next generation mask, the XM 50 Joint Service General Purpose Mask (JSGPM). At the same time, the Army will have completed its transition from its current Battle Dress Overgarment (BDO) to the new Joint Service Lightweight Suit Technology (JSLIST) suits, and move to an NBC-Soldier Hydration System for improved capability under NBC conditions. Collective protection will improve for medical units with the fielding of the Chemically Protected Deployable Medical System (CPDEPMEDS) and the Chemical Biological Protective Shelter (CBPS) at the battalion level. Collective protection for the IAV will consist of a ventilated facepiece system.

Decontamination

The ability of U.S. forces to conduct decontamination is an essential component of force protection. Having the capability to remove, neutralize, or destroy NBC contamination is a key component in restoring the combat power of units.



Lessons learned from the past show that current decontamination methods and capabilities are inadequate to keep pace with Transformation.

Units must be able to decontaminate faster, more effectively, with minimum amounts of water and without

damaging sensitive equipment while sustaining operations. Developing decontaminants, delivery apparatus, and doctrine is an ongoing effort that will help to ensure survivability in contaminated environments.

The future decontamination system concept will be capable of conducting thorough, mobile, fixed site and terrain decontamination operations with the same equipment. Using the HEMTT-Load Handling System (LHS) and decontaminant provides for a common platform with a reduced logistical footprint while facilitating critical NBC decontamination operations in complex and restrictive terrain.

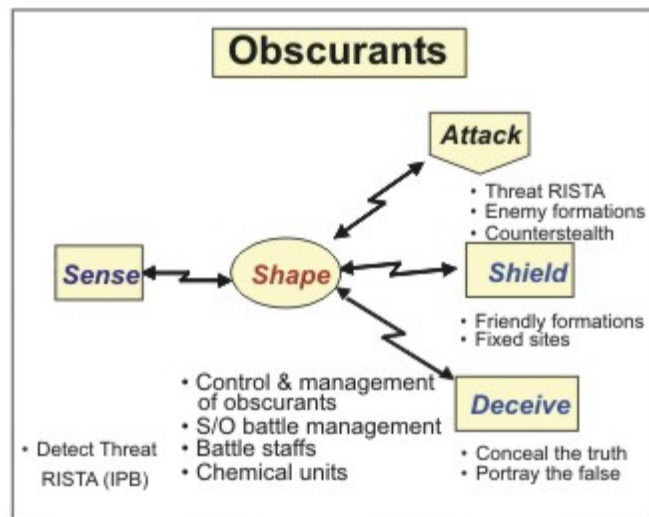
For the Legacy Force, existing M17 Lightweight Decontamination Systems (LDS) will be maintained to conduct operational decontamination. Chemical Corps dual-purpose (smoke and decontamination) units will be equipped with the Modular Decontamination System (MDS). The Objective Force will be equipped with the new decontaminants and applicators that ultimately are selected from the Joint Sensitive Equipment Decontamination (JSSED) program and the Joint Fixed Site Decontamination (JSFXD) program.

Obscuration

With the rapid proliferation of advanced target acquisition systems and advanced weapons, the commander must not only protect his situational awareness, but also degrade the adversary's capability. The five

principles for obscurants provide the framework to degrade an adversary's situational awareness. Obscurants support the warfighter by providing him with a capability to attack an enemy's target acquisition systems across the electromagnetic spectrum.

Smoke systems for the Legacy Force, providing visual and infrared (IR) smokes only, will remain with the current M56 motorized smoke system (HMMWV mounted). A Millimeter Wave (MMW) capability is programmed for the M56 in both the Legacy and Objective Forces. For the mechanized units of the Legacy Force, the current M58 (M113A3-mounted) smoke system will be maintained but is not funded to provide an MMW capability. The addition of the MMW



capability for the M58 is an unfunded requirement to support both the Legacy and Objective Forces. Obscurants for the Interim Force IAV will consist of a rapid multispectral, self-obscuration grenade system.

Unmanned Ground Vehicle Rapid Obscuration Platform (UGVROP)

Military operations in urban terrain present key survivability and C2 challenges to deployed forces, due in part to the relatively close quarters and quick reaction times associated with high-intensity urban combat. Recent developments in both robotics and obscurants provide new opportunities to increase the survivability of all Army forces.



Discussion of equipment

M93/M93A1 Nuclear Biological Chemical Reconnaissance System (NBCRS) (Fox)

Description. NBCRS–Fox Block I Modification (M93A1) contains an enhanced NBC sensor suite consisting of the M21 Remote Sensing Chemical Agent Alarm (RSCAAL), MM1 Mobile Mass Spectrometer, Chemical Agent Monitor and Improved Chemical Agent Monitor (CAM/ICAM), AN/VDR-2 Beta Radiac, and M22 Automatic Chemical Agent Detector and Alarm (ACADA). The NBC sensor suite has been digitally linked with the communications and navigation



subsystems by a dual-purpose central processor system known as the Multipurpose Integrated Chemical Agent Detector (MICAD). The MICAD processor fully automates NBC warning and reporting functions and provides the crew commander with full situational awareness of the Fox's NBC sensors, navigation, and communications systems. The M93A1 Fox is also equipped with an advanced navigation system Global Positioning System (GPS) and Autonomous Navigation System (ANAV) that enables the system to accurately locate and report agent contamination. The mobility platform is a six-wheeled, all-wheel-drive armored vehicle capable of cross-country operation at speeds up to 65mph. The Fox system is fully amphibious with swimming speeds up to six mph. As a reconnaissance vehicle, it can locate, identify, and mark chemical/biological agents on the battlefield. The Fox usually accompanies scouts or motorized reconnaissance forces when performing its NBC mission. It has an overpressure filtration system that permits the crew to operate the system in a shirtsleeve environment, fully protected from the effects of NBC agents and contamination. The M93A1 system is operated by a three-person crew (legacy systems require a four-person crew). The M93A1 will be one of the few systems fielded with a fully interactive electronic technical manual (IETM).

Operational

Requirement. Detect, identify, and mark areas of nuclear and chemical contamination; sample for NBC contamination; and report

accurate information to supported commanders in real time.

Program Status. 1QFY99 FUE. 1QFY00 fielding of 54 systems has been completed. Remaining 42 systems are scheduled for conversion and fielding through 4QFY03. General Dynamics (Detroit, Michigan and Anniston, Alabama) and Henschel Wehrtechnik (Kassel, Germany) are the developer and manufacturer.

M31/M31A1 Biological Integrated Detection System (BIDS)



Description. The BIDS consists of a shelter mounted on a dedicated vehicle (M1097A1 HMMWV) and equipped with a biological detection suite employing complementary technologies to detect large-area biological attacks. It can detect all types of Biological Warfare (BW) agents in less than 10 minutes, and identify any 8 agents simultaneously in less than 30 minutes.

Operational Requirement. The BIDS prevents operational-level surprise and mitigates the effects of large-area biological attacks during all phases of a campaign. Individual BIDS systems are employed throughout the corps area to create a sensor array/network. The BIDS network is used for warning and confirming that a BW attack has

occurred and will provide a presumptive identification of the BW agent being used.

Program Status. The Nondevelopmental Item (NDI) version of the BIDS has been fielded to the 310th Chemical Company (Reserve) and the P3I version has been fielded to the 7th Chemical Company (Bio). Each company has 35 systems. Environmental Technologies Group, Bruker, Inc., BioRad, Inc., Harris Inc., and Marion Composites are the developers/manufacturers.

M17 Lightweight Decontamination System (LDS)

Description. The M17 system includes a pumper and heater module, an accessory box, and a 3,000-gallon rubberized fabric, collapsible water tank. Rock Island Arsenal is the developer/manufacturer.



Operational Requirement. The M17 is used for operational equipment decontamination at the battalion level.

Program Status. Fielding completed.

M58 Tracked Smoke System (Wolf)

Description. The M58 Wolf is a mechanized armored vehicle, which provides large-area multispectral screening for maneuver forces. Major

components include a turbine smoke generating system. The M58 uses a M113A3 chassis. The M58 carries enough fuel and obscurant material to continuously produce visual smoke for up to 90 minutes and 30 minutes of infrared screening smoke. The Wolf is a program to add a 30-minute millimeter wave obscuring capability to defeat enemy radar devices and



weapon systems. The M58 is operated by a three-person crew and has the capability to counter the threat arising from the wide proliferation of advanced visual and IR sensors.

Operational Requirement. The M58 Wolf enhances the maneuver commander's ability to tactically employ his forces. Missions include providing static and mobile visual and/or IR screening (haze, blanket, curtain) to conceal ground maneuver forces, breaching, recovery, and river crossing operations.

Program Status. 133 of 140 systems fielded. Last seven systems scheduled for fielding in 4QFY01. Anniston Army Depot is the developer/manufacturer.

Modular Decontamination System (MDS)

Description. The MDS consists of two modules and associated accessories: one M21 Decontaminant Pumper (DP)

and two M22 High-Pressure Washers (HPWs). The M21 DP provides the capability to apply decontaminants. The M22 provides the capability of dispensing water at pressures OF 500



to 3000 psi to remove mud, dirt, grease, or other contaminants from equipment exteriors.

Operational Requirement. The primary mission of MDS-equipped units is to conduct thorough equipment decontamination operations. The MDS replaces the M12A1 PDDA's present labor-intensive process and allows better decontamination by providing high-pressure and hot water capabilities with controlled dispensing of decontaminants.

Program Status. FUE is 2QFY02. The CENTECH Group is the developer /manufacturer.

M56 Wheeled Smoke System (Coyote)



Description. The M56 Coyote is a motorized system mounted in an M1113 expanded capacity HMMWV.

The smoke generating system provides 90 minutes of visual and 30 minutes of infrared obscuration before resupply is needed. A preplanned materiel change to add a 30-minute millimeter wave obscuring capability will defeat enemy radar sensors. A crew of two operates the M56 Coyote. M56 is currently the base platform for UGVROP conceptual studies in support of Army Transformation.

Operational Requirement. The M56 Coyote enhances the division or corps commander's ability to protect his own forces by denying the enemy information. The M56 operates in support of light and airborne maneuver units by disseminating obscurants on the move and from stationary positions to defeat enemy sensors and smart munitions such as tank thermal sights, guided munitions, and other systems operating in the visual through far-IR regions of the electromagnetic spectrum.

Program Status. FUE was 1QFY99 at Fort Bragg. In 4QFY99, finished fielding 25% of the Army's required M56 Smoke Generator Systems. General Dynamics Robotic Systems is the developer/manufacturer for FY95-00 production with the developer/manufacturer for FY01-05 still to be determined.

Interim Armored Vehicle(IAV)-NBCRS

Description. The IAV-NBCRS will incorporate the Block II NBCRS integrated chemical and biological point detectors that will allow on-the-move standoff biological and chemical agent detection. The Chemical

Biological Mass Spectrometer (CBMS) Block II will improve the detection and identification of liquid chemical agents while providing a first-time biological agent detection capability to the reconnaissance platform. The Block II sensor suite will automatically integrate contamination information with data from onboard navigation and meteorological systems and rapidly transmit contamination hazard and clear area intelligence to the appropriate operations center. Integration of the common NBC technical architecture will allow for expansion/upgrading of the onboard computers at minimal cost, as well as the command and control of NBC-sensing UAVs and Unmanned Ground Vehicles (UAGs) in the Objective Force system.



Operational Requirement. The IAV-NBCRS must be capable of detecting and identifying NBC contamination and toxic industrial and residual hazards.

Program Status. The IAV-NBCRS development program completed the Critical Design Review (CDR) for the NBC sensor suite in September 2000. Hardware procurement and software coding has been initiated. A demonstration of the NBC sensor suite is scheduled for April 2001. Engineering Development Test (EDT) and Limited User Test (LUT) are planned for FY02. Milestone C is scheduled for 1QFY03 and will allow

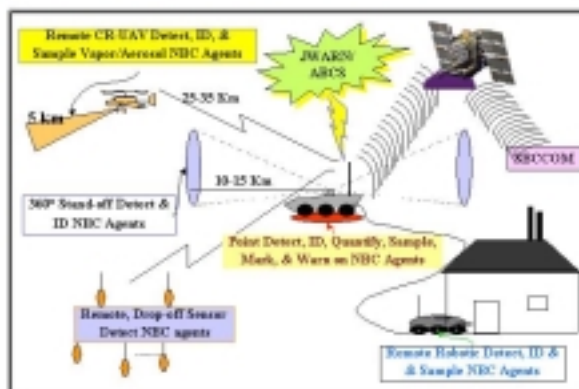
the start of LRIP. Production Verification Testing (PVT) and Initial Operational Test and Evaluation (IOT&E) are planned for FY03/04. Developer and manufacturer are still to be determined.

Objective Force System

Description. The future objective system will be based on the IAV-NBCRS as baseline, and will include fully integrated point and standoff chemical and biological NBC sensors, increased armor protection, and preplanned product improvements of NBC sensing UAVs and UAGs. Will provide U.S. Army chemical forces a superior capability and a bridge to the future. Open architecture design facilitates Future Combat System capabilities integration.

Operational Requirement. Remote standoff ranging detection identification.

Program Status. In concept development.



Assessment

Among the significant changes to the future strategic environment,

proliferation of WMD is recognized as a principal asymmetric threat capable of providing an adversary military advantage to neutralize overwhelming conventional superiority. Having an effective NBC defense is a necessary component of any defense strategy that seeks to demonstrate to the adversary that use of WMD will not gain the advantage sought. Modernizing the force while conducting a robust S&T effort is critical to preventing technological surprise from new Chemical/Biological (CB) agents or different employment means. Recapitalizing and maintaining the current force is necessary to enable Transformation and mitigates risk by extending the useful life of current systems within fiscal constraints. This modernization plan assures a disciplined approach to meeting mission-based requirements and secures orderly change as we transition to the Objective Force.

Nevertheless, although significant and measurable progress has been made to enhance survivability and sustain operations after an NBC attack, current fiscal constraints have inhibited our ability to establish and maintain information superiority by countering an adversary's reconnaissance, surveillance, and target acquisition sensors. Unless additional resources are provided, we will not be able to take full advantage of our ability to obscure battlefield sensors operating in the millimeter wave region of the electromagnetic spectrum. This capability must be included in both the Legacy and Objective Forces as we transform from platform survivability to force survivability.

Engineer Survivability Component

Overview

In the challenging and complex environment of the 21st century, The Army will continue to place emphasis on the ability to protect and provide freedom of action and movement of personnel and assets through the tailored selection and application of multilayered active and passive measures. Engineer assets provide key enablers to accomplish this task. The Engineers seek to capitalize on the insertion of technologies that enhance the survivability of the force. Key systems such as High Mobility Engineer Excavator (HMEE) and the Tactical Fire Fighting System (TFFS) provide a capability to protect the force. The Ultra-Lightweight Camouflage Net System (ULCANS) provides all forces with a lightweight camouflage system for increased passive protection.

Engineer Modernization in Support of Transformation

Overview

Engineers play a vital role in the Legacy, Interim, and Objective Forces. The primary role of Engineers on the modern battlefield is to provide mobility, countermobility, survivability, general engineering, and geospatial engineering. This role does not change in the Interim and Objective Forces. The ultimate goal of Engineer modernization is to support the maneuver commander. As the Army transitions to new doctrine, equipment and organization, the Engineer Corps will continue and expand modernization initiatives already underway to transform in stride with the rest of the Army.

Legacy, Interim, and Objective Forces

In the Legacy, Interim and Objective Forces, the three systems in this section support all three forces in the same manner. Full Dimensional Protection will be enhanced with the introduction of the High Mobility Engineer Excavator (HMEE), which increases survivability by construction of survivability positions and protective berms. The HMME will replace the Small Emplacement Excavator (SEE) in the Legacy and Interim Forces and will remain a key system for the Objective Force. The Tactical Firefighting Systems (TFFS) provides a reactive and mobile firefighting capability to all areas on the battlefield for all three forces. The Ultra-Lightweight Camouflage Net (ULCANS) provides significantly increased passive protection over current camouflage systems for all three forces.

Discussion of Equipment

High Mobility Engineer Excavator (HMEE)

Description.

The HMEE is a lightweight, all-wheel drive, diesel engine driven, high-mobility vehicle with backhoe, bucket loader, and other attachments such as a handheld hydraulic rock drill, chain saw, and pavement breaker. A multipurpose front bucket supports general lifting and loading operations. A backhoe bucket is used for trenching, ditching, and digging missions. Available attachments include a forklift, auger with the capability to bore to an 8-foot depth, a winch, snowplow, and armor protection if needed. The HMEE is highly mobile and has a speed of 40 mph on improved roads. Planned fielding includes Active, Reserve, and ARNG Components.



Operational Requirement. The IBCT requires a rapidly deployable construction equipment capability for survivability and construction purposes. By being highly mobile the HMEE performs both missions without the need of a truck/trailer combination to move it from job site to job site.

Program Status. The Operational Requirements Document (ORD) for the HMEE has been approved. The HMEE has been approved for a Foreign Comparative Test (FCT) in FY01. Fielding could begin in FY02 based on the results of the FCT. PB FY02 will fund 136 systems.

Tactical Firefighting System (TFFS)

Description. The TFFS will consist of an all-purpose crash rescue/firefighting truck referred to as a Tactical Firefighting Truck (TFFT), a Load Handling System (LHS) vehicle mounting an Engineer water mission module which will have a capacity of 3,000 gallons of water, and a Palletized Load System (PLS) trailer with another 2,000-gallon water module. The major efforts involve the TFFT, which will be a commercial firefighting unit mated to a standard Army HEMTT vehicle. This vehicle is as mobile and maintainable as the force supported and overcomes many of the problems associated with using standard firefighting equipment in a tactical environment. Planned fielding includes Active, Reserve, and ARNG Components.

Operational Requirement. The TFFS will provide a total of 5,000 gallons of water and a modern foam system manned and equipped to fight all the various fires expected on the battlefield. Primary focus is to reach the tactical site, rescue victims, and prevent further loss of material, facilities, or lives. In the field, the TFFS will be stationed at a temporary tactical airfield, ammunition storage site, or petroleum storage site or collocated with a division or corps headquarters.

Program Status. A contract was awarded in 4QFY00. FUE is set for 1QFY04. PB02 will fund 102 systems.

Ultra-Lightweight Camouflage Net System (ULCANS)

Description. ULCANS is an all-weather, modular concealment system providing visual, near-IR, and radar signature reduction. The system is designed for easy, rapid deployment and recovery and is field repairable and maintainable. The system will be provided in woodland, desert, arctic, and urban patterns. The system provides forces the ability to reduce probability of detection while conducting combat operations. ULCANS will provide this capability for weapons systems, vehicles, tactical operation centers, aircraft, logistics systems, and other tactical equipment.



Operational Requirement. ULCANS will significantly improve the capability, weight, and safety factors of the existing camouflage nets. Primary goal is to make equipment and personnel nearly invisible to radar, IR, and visual detection, thus increasing the survival rate.

Program Status. Funding runs through FY01.

Assessment

Force Protection is a vital part of the Objective Force, and Engineer survivability efforts are essential to achieving a protection overmatch to threat. Of particular importance is increased funding for the ULCANS camouflage net system. Funding runs through FY01 but is insufficient to provide this improved system to all units. Failure to field the ULCANS leaves our forces vulnerable to detection from commercially available sensors. Firefighting is essential for airfield operations, munitions storage, and base camp protection. Current systems are aged and unable to provide the necessary mobility to support our Legacy, Interim, and Objective Forces. HMEE is essential to provide protective positions, sanitation facilities, and rubble reduction to the Interim and Objective Forces.

Military Police Component

Overview

The Military Police functional area provides critical linkages between maneuver and sustainment forces to ensure freedom of movement and protection of sustainment and C2 nodes. While primarily represented within the Full Dimensional Protection area, Military Police also provide significant enablers to the overall success of Dominant Maneuver and Information Superiority. It is imperative that the Military Police transforms and takes advantage of initiatives that enhance Military Police and the Army as a whole. Military Police doctrine remains relevant throughout the Army's

Transformation based on five primary Military Police functions: maneuver and mobility support; area security; internment, resettlement, and enemy prisoners of war operations; police intelligence; and law and order operations. This diverse mission set provides a significant advantage to Army forces by minimizing the diversion of valuable combat forces to perform missions not requiring combat formations.

The versatility of the Military Police forces requires that they be survivable and possess the necessary lethality to deal with the asymmetrical threats, which are becoming even more critical concerns in the changing strategic and operational environment. Unique capabilities include the following: understanding the complexity of ensuring maneuver and mobility support in noncontiguous operations characterized by uncertain host nation support; understanding that multiethnic and demographically diverse populations will require special handling; maximizing the utility of police intelligence, which has always been embedded in law enforcement, but has taken on increased importance as a source of intelligence in support and stability operations such as those in Bosnia and Kosovo; and day-to-day law and order and interface between military forces and the civilian populace.

Finally, area security remains a constant requirement throughout the transition of the force, with force protection and physical security an enduring priority. Overall, the daily execution of basic Military Police tasks, which contribute significantly to

controlling the human dimension in diverse and challenging contingencies, coupled with training for dealing with less conventional threats, demonstrates the important contribution that the Military Police will make in providing Full Dimensional Protection to the transforming force.

Assessment

As U.S. combat and combat support forces have all improved their survivability, lethality, mobility, and communications capabilities over the last few years, and with the increased likelihood of asymmetric threats to the force, the thresholds for threat levels are currently being redefined. Ongoing equipment initiatives include: leveraging Defense Advanced Research Projects Agency (DARPA) digital Military Police initiatives for continued integration with the maneuver Land Warrior program to provide much needed relevant and functionally unique, yet integrated, information requirements at the soldier level; enhanced day/night thermal optics; integration of dynamic sensors (seismic, acoustic, video) for enhanced reconnaissance and security operations and other physical security/force protection capabilities; continued robotics exploration and possible integration into the force capabilities; and work on nonlethal capabilities for the Army and DoD in conjunction with joint nonlethal programs to provide conflict resolution alternatives to tactical commanders. These initiatives will ensure that the Military Police functional area remains relevant and fully supportive of the Army throughout Transformation